



**UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION II
245 PEACHTREE CENTER AVENUE NE, SUITE 1200
ATLANTA, GEORGIA 30303-1257**

December 28, 2018

Mr. Daniel G. Stoddard
Senior Vice President and
Chief Nuclear Officer
Innsbrook Technical Center
5000 Dominion Boulevard
Glen Allen, VA 23060

SUBJECT: RE-ISSUE - NORTH ANNA POWER STATION – NRC INTEGRATED
INSPECTION REPORT 05000338/2017002 AND 05000339/2017002

Dear Mr. Stoddard:

On August 1, 2017, the U.S. Nuclear Regulatory Commission (NRC) issued the subject inspection report for North Anna Power Station, Agencywide Document and Management System (ADAMS) Accession Number ML17213A026. After the inspection report was issued, the NRC noted that some clarifying information, administrative in nature, was inadvertently omitted from the report. Additionally, duplicate information was removed. Accordingly, we have revised Inspection Report (IR) 05000338/2017002 and 05000339/2017002, to document the necessary changes. Please replace the original report with the report enclosed. This reissued report does not change any NRC position that has been communicated in the previously issued report.

This letter, its enclosure, and your response (if any) will be made available for public inspection and copying at <http://www.nrc.gov/reading-rm/adams.html> and at the NRC Public Document Room in accordance with 10 CFR 2.390, "Public Inspections, Exemptions, Requests for Withholding." I apologize for any inconvenience this error may have caused. If you have any questions, please contact me at (404) 997-4663.

Sincerely,

/RA/

David H. Hardage, Acting Chief
Reactor Projects Branch 4
Division of Reactor Projects

Docket Nos.: 05000338, 05000339
License Nos.: NPF-4, NPF-7

Enclosure:
Re-issue – IR 05000338/2017002 and 05000339/2017002
w/Attachment: Supplemental Information

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INSPECTION REPORT 05000338/2017002 AND 05000339/2017002
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U.S. NUCLEAR REGULATORY COMMISSION

REGION II

Docket Nos: 50-338, 50-339

License Nos: NPF-4, NPF-7

Report No: 05000338/2017002 and 05000339/2017002

Licensee: Virginia Electric and Power Company (VEPCO)

Facility: North Anna Power Station, Units 1 and 2

Location: Mineral, Virginia 23117

Dates: April 1, 2017, through June 30, 2017

Inspectors: G. Croon, Senior Resident Inspector
S. Cuadrado de Jesus, Resident Inspector
S. Sanchez, Senior Emergency Preparedness Inspector (Sections 1EP2, 1EP3, 1EP4, 1EP5 and 4OA5.1)
J. Hickman, Emergency Preparedness Inspector (Sections 1EP2, 1EP3, 1EP4, 1EP5 and 4OA5.1)

Approved by: Anthony D. Masters, Chief
Reactor Projects Branch 5
Division of Reactor Projects

Enclosure

SUMMARY

IR 05000338/2017002, 05000339/2017002; April 1, 2017 – June 30, 2017; North Anna Power Station, Units 1 and 2. Routine Integrated Inspection Report.

The report covered a three-month period of inspection by resident inspectors. No NRC-identified or self-revealing findings were identified. The report also covered an announced inspection by two emergency preparedness inspectors. The NRC's program for overseeing the safe operation of commercial nuclear power reactors is described in NUREG-1649, "Reactor Oversight Process," Revision 6.

REPORT DETAILS

Summary of Plant Status

Unit 1 began the inspection period at approximately 100 percent rated thermal power (RTP), and operated at RTP for the remainder of the inspection period.

Unit 2 began the inspection period at approximately 100 percent RTP, and operated at RTP for the remainder of the inspection period.

1. REACTOR SAFETY

Cornerstones: Initiating Events, Mitigating Systems, and Barrier Integrity

1R01 Adverse Weather Protection

.1 Seasonal Extreme Weather

a. Inspection Scope

The inspectors reviewed the licensee's adverse weather preparations for hot weather operations, specified in 0-GOP-4.1, "Hot Weather Operations," Revision (Rev.) 36, 0-GOP-5.5, "EDG Hot Weather Operation," Rev.14, and the licensee's corrective action program (CAP) database for hot weather related issues. The inspectors walked down two risk-significant systems/areas listed below to verify compliance with the procedural requirements and to verify that the specified actions provided the necessary protection for the structures, systems, or components.

- Unit 1 emergency diesel generator (EDG) 1J and Unit 2 EDGs 2H and 2J
- Station blackout diesel

b. Findings

No findings were identified.

.2 Impending Adverse Weather Conditions

a. Inspection Scope

The inspectors performed a site-specific, weather-related inspection due to anticipated adverse weather conditions. On April 17, 2017, the inspectors reviewed the licensee response to severe storm warnings, with tornado watch, and high wind warnings of 40 miles an hour for the area. Specifically, the inspectors reviewed licensee adverse weather response procedures, including 0-AP-41, "Severe Weather Conditions", Rev. 61, and site preparations including work activities that could impact the overall maintenance risk assessments.

b. Findings

No findings were identified.

1R04 Equipment Alignment

Partial Walkdowns

a. Inspection Scope

The inspectors conducted five equipment alignment partial walkdowns, listed below, to evaluate the operability of selected redundant trains or backup systems with the other train or system inoperable or out of service. The inspectors reviewed the functional systems descriptions, Updated Final Safety Analysis Report (UFSAR), system operating procedures, and Technical Specifications (TS) to determine correct system lineups for the current plant conditions. The inspectors performed walkdowns of the systems to verify the operability of a redundant or backup system/train or a remaining operable system/train with a high risk significance for the current plant configuration (considering out-of-service, inoperable, or degraded condition); or a risk-significant system/train that was recently realigned following an extended system outage, maintenance, modification or testing; or a risk-significant single-train system. The inspector conducted the reviews to ensure that critical components were properly aligned and to identify any discrepancies which could affect operability of the redundant train or backup system. Documents reviewed are listed in the Attachment.

- Partial walkdown of Unit 1 turbine-driven auxiliary feedwater (AFW) pump 1-FW-P-2 in pump room prior to the performance of periodic testing (1-PT-71.3Q. "1-FW-P-3B, B Motor-Driven AFW Pump and Valve Test") on the U1 motor-driven AFW pump 1-FW-P-3B
- Partial walkdown of Unit 1 station vacuum priming system (vacuum priming tank 1-VP-TK-1, vacuum priming pump 1-VP-P-1A and associated piping and valves)
- Partial walkdown for the alignment of the new fire protection pump/motor for 1-FP-P-1 and related valves and pipes in the fire pump room after its return to operable status (pump was out of service for more than one month)
- Partial walkdown Unit 2 AFW motor driven pumps during the performance of 2-PT-71.1Q.1 for U2 turbine driven AFW pump
- Partial walkdown of U1 boron injection tank (BIT) after its return to operable status (BIT heat tracing was found inoperable during 1-PT-59.4J on June 20, 2017)

b. Findings

No findings were identified.

1R05 Fire Protection

Quarterly Fire Protection Walkdowns

a. Inspection Scope

The inspectors conducted focused tours of the four areas listed below that are important to reactor safety to verify the licensee's implementation of fire protection requirements as described in fleet procedures CM-AA-FPA-100, "Fire Protection/Appendix R (Fire Safe Shutdown) Program," Rev. 10, CM-AA-FPA-101, "Control of Combustible and Flammable Materials," Rev. 8, and CM-AA-FPA-102, "Fire Protection and Fire Safe Shutdown Review and Preparation Process and Design Change Process," Rev. 5. The inspectors evaluated, as appropriate, conditions related to: (1) licensee control of transient combustibles and ignition sources; (2) the material condition, operational

status, and operational lineup of fire protection systems, equipment, and features; and, (3) the fire barriers used to prevent fire damage or fire propagation. Documents reviewed are listed in the Attachment.

- Unit 1-2, Diesel pump house room
- Unit 1 1J and 1H EDG rooms and Unit 2 2J EDG room
- Unit 1, Emergency switchgear room
- Unit 1 Battery rooms 1-I, 1-II, 1-III, and 1-IV

b. Findings

No findings were identified.

1R11 Licensed Operator Requalification Program and Licensed Operator Performance

.1 Licensed Operator Requalification

a. Inspection Scope

The inspectors reviewed a licensed operator performance on June 29, 2017, during a simulator scenario. The scenario required classifications and notifications that were counted for NRC performance indicator (PI) input. The inspectors observed the following elements of crew performance in terms of communications: (1) ability to take timely and proper actions; (2) prioritizing, interpreting, and verifying alarms; (3) correct use and implementation of procedures, including the alarm response procedures; (4) timely control board operation and manipulation, including high-risk operator actions; and (5) oversight and direction provided by the shift supervisor, including the ability to identify and implement appropriate TS actions.

b. Findings

No findings were identified.

.2 Control Room Operator Performance

a. Inspection Scope

During the inspection period, the inspectors conducted three observations of licensed reactor operators actions and activities to ensure that the activities were consistent with the licensee procedures and regulatory requirements. These observations took place during both normal and off-normal plant working hours. As part of this assessment, the inspectors observed the following elements of operator performance: (1) operator compliance and use of plant procedures including TS; (2) control board/in-plant component manipulations; (3) use and interpretation of plant instruments, indicators and alarms; (4) documentation of activities; (5) management and supervision of activities; and (6) communication between crew members.

The inspectors observed and assessed licensed operator performance during the following events:

- April 4, 2017, Observed U1 control room operators' performance during 1-PT-17.1 "Control Room Operability," Rev. 37, performed as required by TS SR 3.1.4.2.

- April 19, 2017, Observed U1 control room operators' performance during 1-PT-34.3, "Turbine Valve Freedom Test," Rev. 42.
- June 30, 2017, Observed U1 control room operators' performance during U1 main generator automatic voltage regulator (AVR) being placed back in service.

b. Findings

No findings were identified.

1R12 Maintenance Effectiveness

a. Inspection Scope

For the four equipment issues listed below, the inspectors evaluated the effectiveness of the respective licensee's preventive and corrective maintenance. The inspectors performed walkdowns of the accessible portions of the systems, performed in-office reviews of procedures and evaluations, and held discussions with licensee staff. The inspectors compared the licensee's actions with the requirements of the Maintenance Rule (10 *Code of Federal Regulations* [CFR] 50.65), and licensee procedure ER-AA-MRL-10, "Maintenance Rule Program," Rev. 6. Documents reviewed are listed in the Attachment.

- U1 feedwater pump impeller failure
- U2 2-DB-BFP-1B back flow replacement
- U1 malfunction of the control card for BIT outlet normal heat trace
- U1 generator AVR fuse replacement

b. Findings

No findings were identified.

1R13 Maintenance Risk Assessments and Emergent Work Control

a. Inspection Scope

The inspectors evaluated, as appropriate, the three activities listed below for the following: (1) effectiveness of the risk assessments performed before maintenance activities were conducted; (2) management of risk; (3) appropriate and necessary steps taken to plan and control the resulting emergent work activities upon identification of an unforeseen situation; and (4) adequate identification and resolution of maintenance risk assessments and emergent work problems. The inspectors reviewed these maintenance activities to verify that the licensee was in compliance with the requirements of 10 CFR 50.65 (a)(4) and the data output from the licensee's safety monitor associated with the risk profile of Units 1 and 2. The inspectors reviewed the corrective action program to verify that deficiencies in risk assessments were being identified and properly resolved.

- U1 fuel oil line replacement
- 1-PT-63.1B and 213.5J 1 QS-P-1B replacement
- Planned sampling of 2-QS-TK-2

b. Findings

No findings were identified.

1R15 Operability Determinations and Functionality Assessments

Operability and Functionality Review

a. Inspection Scope

The inspectors reviewed three operability determinations (OD) and functionality assessments, listed below, affecting risk-significant mitigating systems, to assess, as appropriate: (1) the technical adequacy of the evaluations; (2) whether continued system operability was warranted; (3) whether other existing degraded conditions were considered as compensatory measures; (4) whether the compensatory measures, if involved, were in place, would work as intended, and were appropriately controlled; and (5) where continued operability was considered unjustified, the impact on TS Limiting Conditions for Operation and the risk significance in accordance with the Significance Determination Process. No samples of operator work arounds (OWA) were reviewed because there were no OWAs existing for either unit during the calendar year 2016. The inspectors' review included a verification that ODs were made as specified by procedure OP-AA-102, "Operability Determination," Rev. 13. Documents reviewed are listed in the Attachment.

- Review of OD CR1070061, U1 1-RC-P-1C seal leak off
- Review of OD CA 3056296, 1-HV-AC-1 high vibrations
- Review of OD CA 3027519, 2-QS-MOV-202B high leak off

b. Findings

No findings were identified.

1R18 Plant Modifications

Permanent Modifications

a. Inspection Scope

The inspectors reviewed the completed permanent plant modification design change (DC), DC-NA-13-01199 "A" RSST Bus Cross Tie at Intake Control House. The inspectors conducted walkdowns of the installation, reviewed the 10 CFR 50.59 Safety Review/Regulatory Screening, technical drawings, test plans and the modification package to assess the TS implications. The inspectors also verified that the permanent modification was in accordance with licensee design change process procedure.

b. Findings

No findings were identified.

1R19 Post Maintenance Testing

a. Inspection Scope

The inspectors reviewed six post-maintenance test procedures and/or test activities, listed below, for selected risk-significant mitigating systems to assess whether: (1) the effect of testing on the plant had been adequately addressed by control room and/or engineering personnel; (2) testing was adequate for the maintenance performed; (3) acceptance criteria were clear and adequately demonstrated operational readiness consistent with design and licensing basis documents; (4) test instrumentation had current calibrations, range, and accuracy consistent with the application; (5) tests were performed as written with applicable prerequisites satisfied; (6) jumpers installed or leads lifted were properly controlled; (7) test equipment was removed following testing; and (8) equipment was returned to the status required to perform in accordance with VPAP-2003, "Post Maintenance Testing Program", Rev. 14. Documents reviewed are listed in the Attachment.

- WO 59103115049, Install ground from 2-BY-BC-2-1 to 2-BY-BC-2C-1
- WO 95103087951, Motor Driven Fire Pump protection pump exercise
- WO 59110288087, U1 NI-36 Intermediate range channel II calibration
- CA 3034712, Engineering perform thermography walk-down of Switchyard
- WO 59103068268, AVR drawer #3 negative output sporadic
- WO 59103062300, Unit-2 Recirculation spray casing cooling chiller repairs

b. Findings

No findings were identified.

1R22 Surveillance Testing

a. Inspection Scope

For the five surveillance tests listed below, the inspectors examined the test procedures, witnessed testing, or reviewed test records and data packages, to determine whether the scope of testing adequately demonstrated that the affected equipment was functional and operable, and that the surveillance requirements of TS were met. The inspectors also determined whether the testing effectively demonstrated that the systems or components were operationally ready and capable of performing their intended safety functions. Documents reviewed are listed in the Attachment.

IST Pump or Valve Test:

- 1-PT-71.2Q, "1-FW-P-3A, A Motor-Driven AFW Pump and Valve Test," Rev. 43

Other Surveillance Tests:

- 2-PT-14.1, Unit 2 Charging Pump "2-CH-P-1A" Operability Test, Rev. 55
- 2-PT-212.34H, "Valve Inservice Inspection (2-QS-MOV-202A)," Rev. 13
- 2-PT-212.34J, "Valve Inservice Inspection (2-QS-MOV-202B)," Rev. 16
- 1-PT-34.8.5.3, "Containment Radiation Monitoring Instrument Calibration (RMS 165)," Rev. 3

b. Findings

No findings were identified.

Cornerstone: Emergency Preparedness

1EP2 Alert and Notification System Evaluation

a. Inspection Scope

The inspectors evaluated the adequacy of the licensee's methods for testing and maintaining the alert and notification system in accordance with NRC Inspection Procedure 71114, Attachment 02, "Alert and Notification System Evaluation." The applicable planning standard, 10 CFR Part 50.47 (b) (5), and its related 10 CFR Part 50, Appendix E requirements were used as reference criteria. The criteria contained in NUREG-0654, "Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants," Rev. 1, were also used as a reference.

The inspectors reviewed various documents which are listed in the Attachment and interviewed personnel responsible for system performance. This inspection activity satisfied one inspection sample for the alert and notification system on a biennial basis.

b. Findings

No findings were identified.

1EP3 Emergency Response Organization Staffing and Augmentation System

a. Inspection Scope

The inspectors reviewed the licensee's Emergency Response Organization (ERO) augmentation staffing requirements and process for notifying the ERO to ensure the readiness of key staff for responding to an event and timely facility activation. The qualification records of key position ERO personnel were reviewed to ensure all ERO qualifications were current. A sample of problems identified from augmentation drills or system tests performed since the last inspection was reviewed to assess the effectiveness of corrective actions. The inspection was conducted in accordance with NRC Inspection Procedure 71114, Attachment 03, "Emergency Response Organization Staffing and Augmentation System." The applicable planning standard, 10 CFR 50.47(b) (2), and its related 10 CFR 50, Appendix E, requirements were used as reference criteria.

The inspectors reviewed various documents which are listed in the Attachment. This inspection activity satisfied one inspection sample for the ERO staffing and augmentation system on a biennial basis.

b. Findings

No findings were identified.

1EP4 Emergency Action Level and Emergency Plan Changes

a. Inspection Scope

Since the last NRC inspection of this program area, one change was made to the Radiological Emergency Plan, one change was made to the emergency action levels, and several changes were made to the implementing procedures. The licensee determined that, in accordance with 10 CFR 50.54(q), the Plan continued to meet the requirements of 10 CFR 50.47(b) and Appendix E to 10 CFR Part 50. The inspectors reviewed these changes to evaluate for potential reductions in the effectiveness of the Plan. However, this review was not documented in a safety evaluation report and does not constitute formal NRC approval of the changes. Therefore, these changes remain subject to future NRC inspection in their entirety.

The inspection was conducted in accordance with NRC Inspection Procedure 71114, Attachment 04, "Emergency Action Level and Emergency Plan Changes." The applicable planning standards of 10 CFR 50.47(b), and its related requirements in 10 CFR 50, Appendix E were used as reference criteria. The inspectors reviewed various documents that are listed in the Attachment to this report. This inspection activity satisfied one inspection sample for the emergency action level and emergency plan changes on an annual basis.

b. Findings

No findings were identified.

1EP5 Maintenance of Emergency Preparedness

a. Inspection Scope

The inspectors reviewed the corrective actions identified through the emergency preparedness program to determine the significance of the issues, the completeness and effectiveness of corrective actions, and to determine if issues were recurring. The licensee's post-event after action reports, self-assessments, and audits were reviewed to assess the licensee's ability to be self-critical, thus avoiding complacency and degradation of their emergency preparedness program. Inspectors reviewed the licensee's 10 CFR 50.54(q) change process, personnel training, and selected screenings and evaluations to assess adequacy. The inspectors toured facilities and reviewed equipment and facility maintenance records to assess licensee's adequacy in maintaining them. The inspectors evaluated the capabilities of selected radiation monitoring instrumentation to adequately support emergency action level declarations.

The inspection was conducted in accordance with NRC Inspection Procedure 71114, Attachment 05, "Maintenance of Emergency Preparedness." The applicable planning standards, related 10 CFR 50, Appendix E requirements, and 10 CFR 50.54(q) and (t) were used as reference criteria. The inspectors reviewed various documents which are listed in the Attachment. This inspection activity satisfied one inspection sample for the maintenance of emergency preparedness on a biennial basis.

b. Findings

No findings were identified.

1EP6 Drill Evaluation

Emergency Preparedness (EP) Drill

a. Inspection Scope

On May 2, 2017, the inspectors reviewed and observed the performance of an emergency drill that involved a general area emergency where after an initiating event, loss of numerous safety related equipment led to a large break LOCA. The inspectors assessed emergency procedure usage, emergency plan classification, notifications, and the licensee's identification and entrance of any problems into their corrective action program. This inspection evaluated the adequacy of the licensee's conduct of the drill and performance critique. Exercise issues were captured by the licensee in their corrective action program as CRs. Requalification training deficiencies were captured within the operator training program. Documents reviewed are listed in the Attachment.

b. Findings

No findings were identified.

4. OTHER ACTIVITIES

Cornerstones: Initiating Events, Mitigating Systems, Barrier Integrity

4OA1 Performance Indicator (PI) Verification

a. Inspection Scope

The inspectors performed a periodic review of the Units 1 and 2 PIs listed below to assess the accuracy and completeness of the submitted data and whether the performance indicators were calculated in accordance with the guidance contained in Nuclear Energy Institute (NEI) 99-02, "Regulatory Assessment Performance Indicator Guideline," Rev. 7. The inspection was conducted in accordance with NRC Inspection Procedure 71151, "Performance Indicator Verification." Specifically, the inspectors reviewed the Unit 1 and Unit 2 data reported to the NRC for the period January 1, 2016, through March 31, 2017. Documents reviewed included applicable NRC inspection reports, licensee event reports, operator logs, station performance indicators, and related CRs. Documents reviewed are listed in the Attachment.

Cornerstone: Mitigating Systems

- High Pressure Injection
- Cooling Water

Cornerstone: Barrier Integrity

- Reactor Coolant System Leakage

Emergency Preparedness

- Drill/Exercise Performance (DEP)
- Emergency Response Organization (ERO) Readiness
- Alert and Notification System (ANS) Reliability

b. Findings

No findings were identified.

4OA2 Problem Identification and Resolution

.1 Review of Items Entered into the Corrective Action Program

As required by NRC Inspection Procedure 71152, "Identification and Resolution of Problems," and in order to help identify repetitive equipment failures or specific human performance issues for follow-up, the inspectors performed a daily screening of items entered into the licensee's CAP. This review was accomplished by reviewing daily condition report (CR) summaries and periodically attending daily CR Review Team meetings.

.2 In-Depth Review:

a. Inspection Scope

The inspectors conducted a detailed review of the following nuclear condition reports:

- CR 1065823, Boron Recovery Annunciator Test Button Broken, 4/19/2017
- CR 1064965, Received Plant Computer Trouble Annunciator, 4/10/2017

The inspectors evaluated the following attributes of the licensee's actions:

- complete and accurate identification of the problem in a timely manner
- evaluation and disposition of operability and reportability issues
- consideration of extent of condition, generic implications, common cause, and previous occurrences
- classification and prioritization of the problem
- identification of root and contributing causes of the problem
- identification of any additional condition reports
- completion of corrective actions in a timely manner

Documents reviewed are listed in the attachment.

b. Findings and Observations

No findings were identified. In general, the inspectors verified that the licensee had identified problems at an appropriate threshold and entered them into the CAP database and had proposed or implemented appropriate corrective actions.

.3 Semiannual Trend Review: Procedural Adherence

a. Inspection Scope

The inspectors reviewed issues entered in the licensee's corrective action program and associated documents to identify trends that could indicate the existence of a more significant safety issue. The inspectors focused their review on adherence to procedural guidance, but also considered the results of inspector daily condition report screenings, licensee trending efforts, and licensee human performance results. The review nominally considered the 6-month period of January 2017 through June 2017, although

some examples extended beyond those dates when the scope of the trend warranted. The inspectors compared their results with the licensee's analysis of trends. Additionally, the inspectors reviewed the adequacy of corrective actions associated with a sample of the issues identified in the licensee's trend reports. The inspectors also reviewed corrective action documents that were processed by the licensee to identify potential adverse trends in the condition of structures, systems, and/or components as evidenced by acceptance of long-standing non-conforming or degraded conditions.

b. Findings and Observations

No findings were identified.

4OA5 Other Activities

Review of the Operation of an Independent Spent Fuel Storage Installation – Selected Records Review (Inspection Procedure 60855 and Inspection Procedure 60855.1)

a. Inspection Scope

Inspectors reviewed the normal operation of the independent spent fuel storage installation (ISFSI). The inspectors walked down the ISFSI pad to assess the material condition of the casks, the installation of security equipment, and the performance of monitoring systems. The inspector reviewed procedure 0-OP-4.54, "Transfer Cask/Dry Shielded Canister Transfer to ISFSI and Dry Shielded Canister Transfer Cask to Horizontal Storage Module," Rev. 9. The inspector reviewed records pertaining to each fuel assembly placed in casks which were most recently transferred to the ISFSI. Documents reviewed are listed in the Attachment to this report.

b. Findings

No findings were identified.

4OA6 Meetings, Including Exit

On July 12, 2017, the resident inspectors presented the quarterly inspection results to Mr. L. Lane and other members of the licensee staff. The licensee acknowledged the results of these inspections. The inspectors verified no proprietary information was retained by the inspectors or documented in this report.

ATTACHMENT: SUPPLEMENTAL INFORMATION

SUPPLEMENTAL INFORMATION

KEY POINTS OF CONTACT

Licensee personnel:

M. Becker, Manager, Nuclear Outage and Planning
L. Lane, Site Vice President
B. Gaspar, Manager, Nuclear Site Services
R. Hanson, Manager, Nuclear Protection Services
E. Hendrixson, Director, Nuclear Site Engineering
L. Hilbert, Plant Manager
J. Jenkins, Manager, Nuclear Maintenance
J. Leberstien, Technical Advisor, Licensing
J. Plossl, Supervisor, Nuclear Station Procedures
J. Schleser, Manager, Nuclear Organizational Effectiveness
J. Slattery, Manager, Nuclear Operations
W. Standley, Director, Nuclear Station Safety & Licensing
D. Taylor, Manager, Station Licensing
B. Thompson, Manager, Nuclear Training
M. Whalen, Technical Advisor, Licensing
J. Collins – Corporate Director, Emergency Preparedness (EP)
B. Miller – EP Specialist
D. Plogger – EP Specialist
T. Shalaski – EP Specialist
N. Turner, EP Manager

LIST OF ITEMS OPENED, CLOSED AND DISCUSSED

Opened and Closed

None

LIST OF DOCUMENTS REVIEWED

Section 1R04: Equipment Alignment

Procedures, Guidance Documents, and Manuals

1-OP-31.2A, Valve Checkoff – Auxiliary Feedwater, Rev. 25
2-OP-31.2A, Valve Checkoff – Auxiliary Feedwater, Rev. 23
0-PT-100.2, Fire Protection Pumps -Annual Testing Rev. 26

Drawings

11715-FM-074A Sh 1, “Flow Valve Operating Numbers Diagram Feedwater System”, Rev. 56
11715-FM-074A Sh 2, “Flow Valve Operating Numbers Diagram Feedwater System”, Rev. 51
11715-FM-074A Sh 3, “Flow Valve Operating Numbers Diagram Feedwater System”, Rev. 47
11715-FM-074A Sh 4, “Flow Valve Operating Numbers Diagram Feedwater System”, Rev. 13
11715-FM-074A Sh 5, “Flow Valve Operating Numbers Diagram Feedwater System”, Rev. 1
11715-FM-025A Sh 1, “Flow Valve Operating Numbers Dgm Vacuum Prime System”, Rev. 37
11715-FM-074B Sh 1, “Flow Valve Operating Numbers Dgm Aux Feedwater System”, Rev. 4
11715-FM-096A Sh 1, “Flow Valve Operating Numbers Dgm Safety Injection System”, Rev. 44
11715-FM-096A Sh 2, “Flow Valve Operating Numbers Dgm Safety Injection System”, Rev. 42
11715-FM-096A Sh 3, “Flow Valve Operating Numbers Dgm Safety Injection System”, Rev. 40

Section 1R05: Fire Protection

Procedures, Guidance Documents, and Manuals

1-FS-AB-1, Auxiliary Building Firefighting Strategy Safe Shutdown Equipment, Rev. 6
1-FS-S-3, Unit 1 Emergency Switchgear Instrument Tack and Air Conditioning Rooms Service Building Elev. 254 (SF-54) Safe Shutdown Equipment, Rev. 13
1-FPMP-2.7, Fire Extinguisher Inspection-Service Building and Misc, Rev. 7
0-PT-105.2.1, Hose Station Inspection, Rev. 6
CM-AA-FPA-10, Fire Protection/Appendix R (Fire Shutdown) Program, Rev. 2
CM-AA-FPA-100, Fire Protection/Appendix R (Fire Shutdown) Program, Rev. 13
1-FS-ESG-BR-1, Battery Room 1-2 and 1-4, Rev. 3
0-FS-CT-1, Cable Tray Spreading and Battery Room 2-1, 1-1, 2-3, 1-3, Rev. 4
0-FPMP-2.6, Fire Extinguisher and Hose Station Inspection – Aux Buildings, Fuel Building, Clean Change, Health Physics, and Units 1 and 2 Instrument Shop, Rev. 2
0-FPMP-2.14, Dry Chemical Fire Extinguisher Maintenance, Rev. 3
North Anna Ignition Source Permit for Hot Work in Auxiliary Building, 8/1/2016-8/5/2016
NAPS Appendix R Report, Table 7-1 Exemption Request Status, Rev. 38
1-FS-S-4, Fire Fighting Preplan for Unit 1 & 2 Normal Switchgear Rooms Service Building Elev. 307”, Rev. 5
CM-AA-FPA-101, Control of Combustible and Flammable Materials, Rev. 8

Section 1R12: Maintenance Effectiveness

Corrective Action Documents

CR1071811

Work Order

5910309, 2092804

Section 1R15: Operability Determinations and Functionality Assessments

Corrective Action Documents

3056296

Condition Reports

1069659, 1070061, 1066501

Section 1R19: Post Maintenance TestingProcedures, Guidance Documents, and Manuals

0-EPM-0103-01 "Battery Charger Inspection," Rev. 20-P1

2-EPM-0108-01, "Testing of Station Battery Charger 2-I Alarms," Rev. 5

0-PT-100.2 "Fire Protection Pumps - Annual Testing" Rev. 26

1-PT-100.1.1, Motor Driven Fire Pump protection pump exercise, May 30, 2017

Corrective Action Documents

3034712, Engineering perform thermography walkdown of Switchyard, 4/13/2017

Condition Reports

1060302, 1064579, 1064434, 1059076, 1059801, 1059925, 1061636

Work Orders

WO 59103062300, Repair/Replace Compressor, 2/26/2017

WO 59110288087, U1 NI-36 Intermediate range channel II calibration, 3/3/2017

WO 59103068268, AVR drawer #3 negative output sporadic, 03/09/2017

WO 59103062300, Unit-2 Recirculation spray casing cooling chiller repairs, 2/26/17

WO 95103087951, Motor Driven Fire Pump protection pump exercise, May 30, 2017

Section 1R22: Surveillance TestingProcedures, Guidance Documents, and Manuals

2-PT-14.1, "Charging Pump 2-CH-P-1A [Operability Test]" Rev. 55

2-PT-212.34H, "Valve Inservice Inspection (2-QS-MOV-202A)," Rev. 13

2-PT-212.34J, "Valve Inservice Inspection (2-QS-MOV-202B)," Rev. 16

1-PT-71.2Q, "1-FW-P-3A, A Motor-Driven AFW Pump and Valve Test," Rev. 43

Other

OD CA3027519

Section 1EP2: Alert and Notification System EvaluationProcedures and Reports

North Anna Power Station Emergency Plan, Rev. 44

FEMA Analysis of Alert Notification System for North Anna Plant dated October 19, 1987

Whelen WPS-2800 Series High Power Voice & Siren System Operating & Troubleshooting Manual

0-PT-172.6, Early Warning System Sirens Activation Monitoring, Rev. 5

0-PT-172.7, Early Warning System Polling Functional Test, Rev. 7

0-PT-172.8, Early Warning System Polling (Innsbrook) Functional Test, Rev. 4

North Anna Power Station public information calendars for 2016 & 2017

Records and Data

Early Warning System (EWS) Polling Function Bi-Monthly Test, results from February 2015 to February 2017

EWS Activation Quarterly Monitoring, test results from 2Q15 to 1Q17

North Anna EWS Test Form Telecommunications Operability Testing Quarterly Siren Maintenance 2Q15 to 1Q17

Corrective Action Program Documents (Condition Reports)

CR 1014977, EWS #27 determined to have one non-functional driver
 CR 1015001, EWS #40 determined to have one non-functional driver
 CR 1036538, EWS #28 did not respond to initial polls during scheduled performance test
 CR 1037894, Spotsylvania County EWS siren activation panel failed to function during testing
 CR 1038038, VEOC backup siren activation panel failed when tested
 CR 1044971, 0-PT-172.6, "EWS Sirens Activation Monitoring," suspended prior to completion
 CR 1053945, EWS #58 failed to function during scheduled quarterly siren activation

Section 1EP3: Emergency Response Organization Staffing and Augmentation System

Procedures

NACA-3.05, Augmentation of Emergency Response Organization, Rev. 10
 TR-AA-TPG-2400, Emergency Response Organization Training Guide, Rev. 1
 EPIP-3.05, Augmentation of Emergency Response Organization, Rev. 10
 0-EP-MISC-3, Augmentation Capability Assessment, Rev. 0

Records and Data

Travel time calculations for selected ERO members
 Training and qualification records for selected ERO members
 2012 on-shift staffing analysis
 Current ERO member roster
 Augmentation Capability Assessments – ERO response drill results for 2015 and 2016

Corrective Action Program Documents

CR 0582085, NRC baseline inspection – question ERO minimum staff response time
 CR 1004259, NAPS ERO availability complete with 4 positions below the 2 minimum standard
 CR 1012892, Operations on-shift minimum manning not met
 CR 1020472, While performing ACE data gathering, questions regarding individual qualifications were raised
 CR 1041899, NAPS ERO availability 2-deep minimum standard not met for multiple positions
 CR 1041903, NAPS ERO availability 2-deep minimum standard not met for multiple positions
 CR 1046152, NAPS ERO availability 2-deep minimum standard not met for multiple positions
 CR 1054546, Shift went below minimum manning due to injury
 CR 1063082, Potential challenges to the defense-in-depth of ERO positions
 CR 1068678, North Anna backup EOF location different

Section 1EP4: Emergency Action Level and Emergency Plan Changes

Procedures

DQR-EP-AA, Drill/Exercise Performance Evaluator, Rev. 4
 DQR-EP-AA, Emergency Preparedness Change Evaluator, Rev. 2
 DQR-EP-AA, Emergency Preparedness Data Analyst, Rev. 1
 EP-AA-101, 10 CFR 50.54(q) Change Evaluation, Rev. 6
 EP-AA-102, Rev. & Control of Emergency Plan, Emergency Action Levels (Technical Basis & Matrix), & Reference Manual, Rev. 8
 North Anna Power Station Emergency Plan, Rev. 44
 North Anna Power Station EAL Matrix, Rev. 8
 North Anna Power Station EAL Technical Bases Document (TBD), Rev. 8

Change Packages

NA-16-01 through 09, 50.54(q)(3) Screening/Evaluation for NAPS Emergency Plan Rev. 44, dated 1/12/17

NA-16-006, 50.54(q)(3) Screening for NAPS EAL & EAL TBD Rev. 8, dated 3/7/16
 NA-16-006, 50.54(q)(3) Evaluation for NAPS EAL & EAL TBD Rev. 8, dated 3/8/16
 NA-16-01, 50.54(q)(2) Analysis for EPIP-1.06 Protective Action Recommendations Rev. 13 & EPIP-4.07 Protective Measures Rev. 24, dated 3/15/17
 NA-16-04 through 08, 50.54(q)(2) Analysis for EPIP-4.03 Dose Assessment Team Controlling Procedure Rev. 21, dated 3/22/17

Corrective Action Program Documents

CR 0574339, Differences identified in wording between 0-A-6, EALs and EAL Basis Document
 CR 0576168, EAL Technical Bases Document Edits
 CR 1021098, Legacy administrative error in NAPS E-Plan EPIP cross-reference
 CR 1064334, Potential HU error-likely situation regarding EAL RU1.1/RA1.1
 CR 1071120, Review EP-AA-101 for potential enhancements (NRC-identified)

Section 1EP5: Maintenance of Emergency Preparedness

Procedures

North Anna Power Station Emergency Plan, Rev. 44
 EP-AA-100, Maintaining Emergency Preparedness, Rev. 6
 EP-AA-101, 10 CFR 50.54(q) Change Evaluation, Rev. 6
 EP-AA-102, Rev. & Control of Emergency Plan, Emergency Action Levels (Technical Basis & Matrix), & Reference Manual, Rev. 7
 EP-AA-303, Equipment Important to Emergency Response, Rev. 16
 EP-AA-400, Drill and Exercise Program, Rev. 10
 PI-AA-100-1003, Self-Evaluation and Trending, Rev. 22
 PI-AA-100-1004, Self-Assessments, Rev. 14
 PI-AA-300-3001, Root Cause Evaluation, Rev. 10
 PI-AA-200, Corrective Actions, Rev. 33
 PI-AA-200-2001, Trending, Rev. 7
 PI-AA-200-2002, Effectiveness Reviews, Rev. 11
 VPAP-2601, Maintaining Emergency Preparedness, Rev. 27

Records and Data

Nuclear Oversight Audits 16-02 and 17-02: Emergency Preparedness
 Performance Improvement Report (PIR) 1019515, Pre-visit NRC EP Exercise Inspection, dated 1/14/16
 PIR 1060667, Pre-visit NRC EP Program Inspection, dated 4/27/17
 Self-Assessment Report 3076, INPO EPRV Pre-visit, dated 8/14/15
 North Anna Power Station 2015 Population Update Analysis, dated 12/9/15
 North Anna Power Station 2016 Population Update Analysis, dated 12/8/16
 North Anna Power Station Emergency Plan 2015 Emergency Plan Review, dated 3/28/16
 North Anna Power Station Emergency Plan 2016 Emergency Plan Review, dated 3/31/17
 North Anna Power Station Biennial Exercise Management Critique, dated 3/9/16
 North Anna Power Station Training Drill Management Critique, dated 3/2/16
 North Anna Power Station Training Drill Management Critique, dated 6/23/15
 North Anna Power Station Training Drill Management Critique, dated 5/5/15
 North Anna Power Station Training Drill Management Critique, dated 12/8/15
 North Anna Power Station Medical Drill Sequence of Events, dated 9/27/16
 North Anna Power Station Emergency Plan Drill Management Critique, dated 11/28/16
 North Anna Power Station Emergency Plan Drill Management Critique, dated 4/4/17
 North Anna Power Station Training Drill Management Critique, dated 11/12/15

Work Order (WO) 591030002753, LEOF HVAC indicators indicate that system unable to be placed in emergency

WO 59102920784, LEOF Humidification water pan needs cleaning

WO 59102904610, Repair/replace ERDS CPU

WO 59102991383, TSC UPS Grounded and removed from service

WO 59102983767, Primary MET Tower Ambient Temp failing low

Corrective Action Documents

CR 0578039, TSC Engineering Computer issues

CR 0578841, Incorrect emergency class announced and recorded during drill

CR 0581609, Unable to locate B.5.b. Commitment 5000 W Gas Powered Generator

CR 0582085, NRC Baseline Inspection - Question ERO Minimum Staff individual response time

CR 1003515, NAPS E-Plan Alternate Facility(ies) description needs additional words

CR 1004897, Nonfunctional Equipment in CERC/CEOF

CR 1009815, Dose assessment problems observed in EP training drill

CR 1012892, OPs on-shift minimum manning not met.

CR 1025920, NFEB16FE Simulator ERDS Error Message

CR 1026142, During FEB16 drill, LEOF Offsite Dose Assess was "Met with Problems".

CR 1026178, During FEB16 drill, LEOF, Command and Control, was "Met with Problems".

CR 1026615, EP to develop plan to ensure essentially all EAL ICs demonstrated

CR 1026760, During FEB16 EP Drill, Offsite Protective Measure was NOT MET overall

CR 1026761, During FEB16 EP Drill, Notifications, was determined to be NOT MET overall.

CR 1026762, During FEB16 EP Drill, Offsite Dose, was determined to be NOT MET overall

CR 1026874, 2016 Biennial Exercise, OSC "On-Site Response Teams - Met with Problems".

CR 1026876, 2016 Biennial Exercise Objective #20 – OSC "Exercise Conduct" Met w/Problem

CR 1026883, NRC Graded Exercise NFEB16 BE Obj. 20

CR 1044840, LEOF HVAC system unable to be placed in "Emergency Mode"

CR 1042319, Main Dam EAP Inundation Maps incorrect

CR 1045090, During the 08/16/16 EP Drill, Objective 04 in the LEOF was met with problems

CR 1049539, Automatic download of data to MIDAS stopped on 10/3/16

CR 1052562, NOV16 EPD Objective 2 not met

CR 1061306, Self- assessments have not been performed IAW EP-AA-505, B.5.b Program.

CR 1067178, LEOF Pressure Boundary Doors do not latch

1EP6 Drill Evaluation

NMAY17EPD, "Emergency Preparedness North Anna EP Drill" dated May 02, 2017

Section 40A1: Performance Indicator Verification

Procedures, Guidance Documents, and Manuals

RP-AA-112, Radiation Safety Performance Indicator Reporting, Rev. 4

EP-AA-103, Emergency Preparedness Performance Indicators, Rev. 3

LI-AA-500, NRC/INPO/WANO Performance Indicator and MOR Reporting, Rev. 2

EP-AA-103, Emergency Preparedness Performance Indicators, Rev. 4

Records and Data

DEP opportunities documentation for 2nd Quarter 2016 through 1st Quarter 2017

Drill and exercise participation records of ERO personnel for 2nd 2016 thru 1st Quarter 2017

Siren test data for 2nd Quarter 2016 thru 1st Quarter 2017

NAPS Monthly NRC Performance Indicator Data for July 2016 thru March 2017

NAPS NRC Performance Indicator Data, July 2016 thru April 2017

Electronic Dosimeter Dose/Dose Rate Alarm Log, June 2016 thru March 2017
 EMS Radioactive Effluent Release Reports (Liquid and Gaseous), June 2016 thru March 2017
 NAPS Monthly NRC Performance Indicator Data, June 2016 thru March 2017
Corrective Action Documents

CR 0582080, EP NRC baseline inspection – GE DEP opportunity without a PAR
 CR 0582936, Unanticipated classification in TSC
 CR 1059340, LORP NRC Re-qualification had 1 crew simulator EAL - DEP failure
 CR 1061377, Discrepancies identified in DEP documentation
 CR 1071117, Incorrect data entered in CDE for ERO participation KPI (NRC-identified)

Section 40A2: Problem Identification and Resolution

Corrective Action Documents

CR 1065823, Boron Recovery Annunciator Test Button Broken, 4/19/2017
 CR 1064965, Title Received Plant Computer Trouble Annunciator, 4/10/2017
 CA3045078, Evaluate Plant Computer Trouble Alarm, 4/10/17

Work Orders

WO95103076702, Repair Test Button, 4/19/17

Section 40A5: Other Activities

Procedures, Guidance Documents, and Manuals

0-OP-4.54, "Transfer Cask/Dry Shielded Canister Transfer to ISFSI and Dry Shielded Canister Transfer Cask to Horizontal Storage Module," Rev. 10
 0-OP-4.50, "NUHOMS 32 PTH Dry Shielded Canister Loading and Handling," Rev. 14